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ABSTRACT

This investigation examines empirical support for the internal/external (I/E) frame of reference model which describes the relationships between verbal and math self-concepts, and between these academic self-concepts and verbal and math achievement. The empirical tests are based on all studies (n=6,010; ages 7 to 35 years) that have employed any of the three Self Description Questionnaire self-concept instruments. The I/E model posits that a high math self-concept is more likely when math skills are good relative to peers (an external comparison) and when math skills are better than verbal skills (an internal comparison). Consistent with the model and empirical findings: (1) verbal and math self-concepts are nearly uncorrelated with each other even though verbal and math achievement indicators are substantially correlated with each other and with the matching areas of self-concept; and (2) the direct effect of math achievement on verbal self-concept, and of verbal achievement on math self-concept, is negative. For inferred self-concepts (ratings by external observers), the external process seems to operate, but not the internal process. The findings demonstrate that academic self-concepts are affected by different processes than are the academic achievement areas they reflect and than are the inferred self-concepts. (Author/BS)

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Verbal and Math Self-concepts: An Internal/External Frame of Reference Model

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Verbal and Math Self-concepts: An
Internal/External Frame of Reference Model

ABSTRACT

The purpose of this investigation is to examine empirical support for the internal/external (I/E) frame of reference model which describes the relationships between Verbal and Math self-concepts, and between these academic self-concepts and verbal and math achievement. The empirical tests are based on all studies (n=6,010; age range = 7 to 35+ years) that have employed the SDQ, SDQ II or SDQ III self-concept instruments. The I/E model posits, for example, that a high math self-concept is more likely when math skills are good relative to peers (an external comparison) and when math skills are better than verbal skills (an internal comparison). Consistent with the model and empirical findings: 1) Verbal and Math self-concepts are nearly uncorrelated with each other even though verbal and math achievement indicators are substantially correlated with each other and with the matching areas of self-concept; 2) the direct effect of math achievement on Verbal self-concept, and of verbal achievement on Math self-concept, is negative. For inferred self-concepts based upon the ratings of external observers, the external process seems to operate, but not the internal process. The findings demonstrate that academic self-concepts are affected by different processes than are the academic achievement areas they reflect and than are the inferred self-concepts offered by external observers.

Verbal and Math Self-concepts: An Internal/External Frame of Reference Model

The purpose of this investigation is to present empirical support for the internal/external (I/E) frame of reference model which describes how Verbal and Math Self-concepts are formed. This model has evolved from research designed to test the Shavelson model of self-concept and designed to develop the set of Self Description Questionnaires (SDQ) to measure self-concept. In this sense, the internal/external model represents an interplay between theory and empirical research. In order to describe the I/E model the Shavelson model and SDQ research will be briefly summarized, the internal/external model will be presented, and then empirical support for the model will be examined.

The Shavelson Model: The Structure and Dimensionality of Self-concept.

Positive self-concept is widely valued as a goal in education and is viewed as a possible intervening variable to explain academic behaviors. However, while thousands of studies have employed some measure of self-concept, most of these emphasize other theoretical constructs and interest in self-concept comes from its assumed relevance to these other constructs. Reviews of self-concept research (e.g., Burns, 1979; Shavelson, Hubbard & Stanton, 1976; Welles & Marwell, 1976; Wylie, 1974, 1979) emphasize the lack of a theoretical basis in most studies, and the poor quality of measurement instruments used to assess self-concept. In an attempt to remedy this situation, Shavelson et al. (1976) reviewed theoretical and empirical research and developed a model which posits self-concept as a multifaceted, hierarchically ordered construct. This model, and the self-concept dimensions proposed by Shavelson were the basis of the set of Self Description Questionnaire (SDQ) instruments and theoretical research to be described in this investigation.

Shavelson (Shavelson et al. 1976; Shavelson & Bolus, 1982; Marsh & Shavelson, 1984) broadly defines self-concept as self-perceptions that are formed through one's experience with and interpretations of one's environment, and that are influenced especially by evaluations by significant others, reinforcements, and one's attributions for one's own behavior. In the model, self-concept is further defined by seven major features, it is: 1) organized and structured, in that people categorize information they have about themselves and relate these categories to one another; 2) multifaceted, and the particular facets reflect the category system adopted by a person or shared by a group;

3) hierarchical, with quite specific self-perceptions at the base moving to inferences in subareas and then to self in general at the apex; 4) stable at the apex of the hierarchy, but as one descends the hierarchy it becomes more situationally specific and thus less stable; 5) better differentiated for older children with facets becoming more distinct with age; 6) both evaluative and descriptive; and 7) differentiable from other constructs.

Shavelson also presented a possible representation of his hierarchical model where General-Self appears at the apex and is divided into academic and nonacademic self-concepts at the next level. Academic self-concept is broken into self-concepts in particular subject areas (e.g., math, English, etc.). Nonacademic Self-concept is divided into three areas: Social Self-concept which is broken into relations with peers and with significant others; Emotional self-concept; and Physical Self-concept which is broken into physical ability and physical appearance. Further levels of division are hypothesized for each of these specific self-concepts so that at the base of the hierarchy self-concepts are of limited generality, quite specific, and more closely related to actual behavior. Shavelson considered these facets of self-concept as a possible representation of his hierarchical model; he placed more emphasis on the nature of the structure than on the number or content of specific facets and only assigned labels to facets that appeared near the apex of his hierarchy.

Despite the assumption of multidimensionality in the Shavelson model, factor analyses of the most commonly employed instruments typically fail to identify the scales they were designed to measure (Burns, 1979; Marsh & Shavelson, 1984; Marsh & Smith, 1982; Shavelson et al., 1976; Welles & Marwell, 1976; Wylie, 1974; 1979) and researchers disagree on the structure and dimensionality of self-concept. At one extreme, some have argued that facets of self-concept are so heavily dominated by general self-concept that separate facets cannot be distinguished (e.g., Coopersmith, 1967; Marx & Winne, 1978). At the opposite extreme, Soares and Soares (1977, 1982) argue that the correlations among facets are so low that a model of nearly independent facets is warranted. The hierarchical representation in the Shavelson model may be viewed as consistent with either extreme, depending upon the strength of the hierarchy. However, when the hierarchy is so strong that facets can be represented as a single factor, or so weak that the facets are nearly independent, then the usefulness of the hierarchical representation becomes dubious. While the structure and

dimensionality of self-concept have not been established by empirical research, strong support for the multidimensionality of self-concept, the facets proposed by Shavelson, and for many of his proposals comes from research with the SDQ instruments.

SDQ Research.

The SDQ is a measure of preadolescent self-concept derived from the Shavelson model. It was designed to measure three areas of academic self-concept (Reading, Math, and General School) and four areas of nonacademic self-concept (Peer Relations, Relations With Parents, Physical Ability, and Physical Appearance). Emotional self-concept, though hypothesized by Shavelson, was excluded since preliminary investigations suggested that young children had difficulty with these items and a satisfactory scale could not be constructed. Six independent factor analyses of responses to the SDQ by diverse populations and by children of different ages have each identified the seven hypothesized factors (Marsh, Relich & Smith, 1983; Marsh, Smith & Barnes, 1983; Marsh, Barnes, Cairns & Tidman, in press). Responses to the SDQ facets were substantially correlated with matching self-concepts inferred by primary teachers and those in the academic area with matching measures of academic ability (Marsh, Parker & Smith, 1982; Marsh, Smith, Barnes & Butler, 1983) and with multiple dimensions of self-attributions for academic success and failure (Marsh, Cairns, Relich, Barnes and Debus, 1984), thus providing further support for their validity.

The second self-concept instrument developed by Marsh, the SDQ III, was designed to measure self-concepts for late-adolescents. The SDQ III is based on Shavelson's model, research with the SDQ, and pilot studies with the SDQ III. The initial version of the SDQ III contained the seven facets from the SDQ, except that the Peer scale was divided into Same Sex and Opposite Sex scales. In addition, items were developed to represent Emotional Stability as well as experimental scales labeled General-self (based upon the Rosenberg, 1965, self-esteem scale) and Problem Solving/Creativity. However, the open-ended responses in pilot studies indicated that Religion/Spirituality and Honesty/Reliability were important areas of self-concept that had been excluded, and these are also included on the current SDQ III. Factor analyses of five sets of responses to the SDQ III clearly identified the 13 dimensions, the factors were reliabile and stable, and correlations among the facets were surprisingly small (Marsh, Barnes & Hocevar, in press; Marsh & O'Niell, in press; Marsh, Richards & Barnes,

1984). Marsh and O'Niell found that verbal and mathematical achievement scores were substantially correlated with self-concepts in matching areas, less correlated with other academic self-concepts, and nearly uncorrelated with self-concepts in nonacademic areas. Marsh, Barnes and Hocevar (1984) demonstrated substantial agreement between multiple dimensions of self-concept as indicated by subjects and as inferred by "significant others" who were chosen by the subjects as the person in the world who knew them best.

The most recently developed SDQ instrument, the SDQ II, is designed to measure self-concepts in early-adolescents in high school. The SDQ II represents a blend of the SDQ and the SDQ III, containing some items from each instrument as well as unique items. It is designed to measure 11 facets of self-concept, those measured by the SDQ III excluding the Problem Solving/Creativity and Religion/Spirituality scales. Marsh, Parker and Barnes (1983) examined responses from students in grades 7 - 12. Factor analyses identified the 11 factors the SDQ II was designed to measure, and school performance in math and English classes was substantially correlated with Math and Verbal self-concepts respectively, and less correlated with other areas of self-concept.

Marsh and Shavelson (1984) used responses by students in grades 2 - 5 to test implications from the Shavelson model. At each grade level confirmatory factor analysis identified the seven SDQ factors, demonstrated that the factor loadings were nearly invariant across grade levels, and illustrated that a similar hierarchical structure existed at each grade level. However, the correlations among the first-order factors also varied systematically with age, suggesting that the strength of the hierarchy was stronger for younger children as proposed in the Shavelson model. The younger children differentiated less clearly among the different academic factors. While these findings generally support the Shavelson model, the hierarchy proved to be more complicated than originally anticipated and led to a revision of the model. In particular, Reading and Math self-concepts were relatively uncorrelated, and did not combine with the General School self-concept to form a single, second-order academic factor of self-concept. Instead the results argued for three second-order factors which represent nonacademic, verbal/academic and math/academic self-concepts. The authors noted that the surprising separation of Math and Reading self-concepts was also observed with responses by older subjects on the SDQ II and the SDQ III.

Math & Verbal Self-concepts: The Internal/External (I/E) Model.

In support of the construct validity of self-concept, research has found achievement/ability measures to be more highly correlated with academic than with nonacademic self-concept, and achievement in particular content areas to be most highly correlated with self-concepts in the matching content areas. For example, Marsh, Relich & Smith (1983) showed that math achievement was correlated substantially with Math self-concept (0.55), less correlated with self-concepts in other academic areas (Reading 0.21 and General-School 0.43), and uncorrelated with self-concepts in four nonacademic areas. The lack of correlation between achievement indicators and nonacademic self-concepts has been consistent in all research with the SDQ instruments and demonstrates the clear need to separate academic and nonacademic self-concepts. In an extensive review of achievement/self-concept relationships, Hansford & Hattie (1982) found that measures of ability/performance correlated about 0.2 with measures of general self-concept (which generally incorporate both academic and nonacademic components), but about 0.4 with measures of academic self-concept.

Achievement/ability measures in verbal and mathematical areas typically correlate 0.5 to 0.8 with each other, so it is reasonable to expect that the self-concepts will also be substantially correlated. This expectation was incorporated into the original Shavelson model, where academic self-concepts in particular subject areas were posited to form a general academic self-concept. Hence it is surprising that Math and Reading self-concepts have been found to be nearly uncorrelated with each other. This finding has led to a revision of the Shavelson model (see Marsh & Shavelson, 1983; Shavelson & Marsh, in press) in which self-concepts in particular subject areas are posited to form verbal/academic and mathematical/academic self-concepts. This surprising lack of correlation between Math and Verbal self-concepts has been observed in several previous studies with various SDQ instruments, and Marsh proposed a theoretical model to explain its occurrence (Marsh, Smith & Barnes, 1984). The further development and testing of this I/E frame of reference model is the purpose of the present investigation.

According to the I/E model, Reading and Math self-concepts are formed in relation to both external and internal comparisons, or frames of reference, which can be characterized as:

1) External Comparisons -- According to this process, students compare their self-perceptions of their own ability in math and in reading with the perceived abilities of other students in their frame of reference and use this external relativistic impression as one basis of their

academic self-concept in each of the two areas. It is also assumed that this process is used by external observers to infer the self-concept of someone else.

2) Internal Comparisons -- According to this process, students compare their self-perceived ability in math with their self-perceived ability in reading, independent of how these self-perceived abilities compare with those of other students, and use this internal, relativistic impression as a second basis of their academic self-concept in each of the two areas.

In order to clarify how these two processes operate, consider a student who accurately perceives him/herself to be below average in both math and reading skills, but who is better at math than at reading and other academic subjects. This student's math skills are below average relative to other students (an external comparison) but higher than average relative to his/her skills in other academic areas (an internal comparison). Depending upon how these two components are weighted, this student may have an average or even above-average self-concept in mathematics despite his/her poor math skills.

The external process has been well documented in self-concept research. For example Marsh & Parker (in press; also see Marsh, in press-a, in press-b) demonstrated that students of average ability (relative to the general population) have higher academic self-concepts in a low-ability/SES school (where most students have lower abilities) than in a high-ability/SES school (where most students have higher abilities). Since reading and math abilities are substantially correlated, this external comparison process should lead to a positive correlation between Reading and Math self-concepts. However, the internal process should lead to a negative correlation between Reading and Math self-concepts, since math and reading ability/achievements are compared with each other and it is the difference between math and verbal skills that contributes to a high self-concept in one area or the other. The external process predicts a positive correlation between Verbal and Math self-concepts, the internal process predicts a negative correlation, and the joint operation of both processes, depending upon the relative strength of each, will lead to the near-zero correlation between Reading and Math self-concept which has been observed in empirical research.

This model also predicts a negative direct effect of mathematics achievement on Reading self-concept, and of reading achievement on Math self-concept. For example, a high Math self-concept will be more likely when math skills are good (the external comparison) and when math skills are better than reading skills (the internal comparison). Thus, once math skills are controlled for, it is the difference between math and reading skills which is predictive of math self-concept, and

high reading skills will actually detract from a high Math self-concept.

The I/E model generates a specific and surprising pattern of relationships among variables representing Verbal self-concept, Math self-concept, verbal achievement, and math achievement (labeled 1 - 4 respectively in Figure 1). This pattern of relationships is illustrated in the path diagram in Figure 1 and will be tested with a conventional path analysis as described by Wolfle (1980). Double-headed, curved arrows are used to represent correlations between two variables, while straight lines indicate the direction of a causal linkage. In this model, academic achievement is hypothesized to be one causal determinant of academic self-concept, but does not argue against a more dynamic model where subsequent levels of academic achievement and self-concept are each determined by prior levels of achievement and self-concept. According to the path model, math and reading skills are highly correlated with each other (r34 = "++") while residual Math and Reading self-concepts are nearly uncorrelated. Reading achievement has a strong, positive direct effect on Reading self-concept (p13 = "++"), but a small, negative direct effect on Math self-concept (p23 = "-"). Similarly, math achievement has a strong positive effect on Math self-concept (p24 = "++"), but a weaker, negative effect on Reading self-concept (p14 = "-") . Hence, the I/E model makes many testable predictions besides the lack of correlation between Reading and Math self-concepts, and the purpose of this investigation is to examine empirical support for these predictions.

Insert Figure 1 About Here

Empirical Support For the Internal/External Model

Correlations Between Reading and Math Self-Concepts.

Preadolescent Responses. The bulk of published SDQ research has been with preadolescent responses to the SDQ, and an archive data bank representing 3,562 responses from many different studies has been compiled. While scores representing Math and Reading self-concepts were derived in each of the original studies, these correlations are difficult to compare. In a few studies the correlations were based on unweighted total scores, while in most they were based on factor scores derived from factor analyses that were unique to each study. The earliest SDQ research included responses to negatively worded items, though subsequent research (Marsh, 1984; Marsh, Barnes, Cairns & Tidman, in press) demonstrated that these items were biased and that the bias was related to age and verbal ability for these preadolescent

children. Hence, the negatively worded items are no longer included in scoring the SDQ, though they still appear on the instrument. Finally, the most recent SDQ instrument has been revised to include a General-Self scale similar to that which appears on the SDQ II and SDQ III. While none of the other scales were altered in this revision, factor scores could be influenced by the inclusion of the General-self items. In order to facilitate the comparison of correlations, a single factor analysis was performed on all 3,500 sets of responses to positively worded items for the original SDQ factors that are common to all the studies. Factor scores derived from this analysis were then used to compare the Math/Reading correlation in different studies, and in different subgroups of the total sample.

For purposes of this study, and consistent with previous SDQ research, the eight positively worded items from the seven SDQ scales were divided into four item pairs such that the first two items were assigned to the first pair, the next two items to the next pair, and so forth. A factor analysis was performed on responses to these 28 item-pairs (see Marsh, Barnes, Cairns & Tidman, in press; Marsh & O'Niell, in press; for further discussion and rationale) with the commercially available SPSS program (Nie, et al., 1975) using iterated communality estimates, a Kaiser normalization, and an oblique rotation to a final solution with delta set to -2.0. The results (see Table 1) of the factor analysis clearly identify the seven SDQ factors. The factor loadings for variables designed to measure each factor, the target loadings, are substantial, ranging from 0.46 to 0.85 (median = 0.73). The nontarget loadings are much smaller, ranging from -0.02 to 0.19 (median = 0.03). The correlations among the SDQ factors are modest, ranging from 0.03 to 0.47 (median = 0.12). The largest correlations occur among the first three nonacademic factors, and between the General-School factor and the other two academic self-concepts. Despite the moderate correlation between General-School and Reading (0.34), and between General-School and Math (0.47), and of particular relevance to this study, the correlation between Reading and Math Self-concepts (0.05) is close to zero.

Insert Table 1 About Here

Factor scores were derived from this factor analysis of all responses to the SDQ, and correlations between Reading and Math self-concepts based on these factor scores are presented in Table 2. For the total population the correlation is close to zero (0.06) and only 3 of 12 correlations based upon individual studies reach statistical

significance. However, it is important to note that the correlations based upon the one sample of second graders (0.49) and the one sample of third graders (0.46) are substantial, but that the correlations vary between -0.13 and +0.17 for the other 10 samples based on responses from fourth, fifth and sixth graders. This difference due to grade level is also reflected in the various total sample correlations. Thus, the correlation across all respondents is 0.06, but is 0.01 for fifth and sixth graders and 0.17 for second, third and fourth graders. These findings demonstrate that, with the exception of the youngest children, self-concepts in Math and Reading are nearly uncorrelated.

Insert Table 2 About Here

Responses By Older Subjects. Most SDQ research has been done with preadolescents, but the SDQ II and the SDQ III have been administered to high school and university students, and to young adults. In one large study (study 8 in Table 2) the SDQ II was administered to high school students in grades 7 - 12. The Reading/Math correlation did not reach statistical significance in any of the grade levels and across all respondents was almost exactly zero (-0.0002). The SDQ III has been employed with three studies (studies 9, 10 & 11 in Table 2) with university students, with grade 11 high school students, and with a nonstudent population of young adults who were participants in an Outward Bound program. Again, the five Reading/Math correlations were consistently and remarkably close to zero (-0.03 to 0.03), and did not reach statistical significance for any of the studies.

Other Issues. The lack of correlation between Reading and Math self-concepts is counter-intuitive and disagrees with theoretical models designed to explain academic self-concepts. Consequently, a number of queries have been proposed by anonymous reviewers of manuscripts describing this finding (the finding was first published in 1983, so alternative explanations have not yet been published). The purpose of discussion here is to examine these queries.

Several reviewers have suggested that the relative lack of correlation between Reading and Math self-concepts may be influenced by combining responses from both males and females in determining the correlation. This suggestion is plausible since sex differences have been demonstrated for both Math self-concept (favoring boys) and Reading self-concept (favoring girls). For SDQ responses, the correlation based on the entire population (0.06) differs little from those based on responses by males (0.06) and by females (0.10).

Similarly, for the SDQ II results, the correlation based on the total sample (0.00) differs little from those based on responses by males (0.07) and by females (-0.02) and none of these correlations are statistically significant. While responses to the SDQ III have not been combined for the different studies, study 10 is based on responses from all girls, while study 11 represents responses from primarily males, and neither of these correlations differs significantly from zero. Consequently, the lack of correlation between Reading and Math self-concepts is consistent for responses by males and by females at different age levels.

For the SDQ, items for the Reading and Math scales are each comprised of four affective items (e.g., I like..., I am interested in...) and four cognitive items (e.g., I get good marks in ..., Work in ... is easy for me). The wording of the items in the two scales is exactly the same except for the word "Reading" or "Math". Since the Reading and Math self-concept scores are based upon both cognitive and affective items, these two components are confounded. Reviewers have suggested that the Reading/Math correlations might vary if these two components were considered separately. In order to examine the Math/Reading correlation separately for cognitive and affective components, three unweighted total scores were computed for Reading by summing responses to all eight Reading items, to the four cognitive reading items, and to the the four affective items. Similarly, three unweighted total scores were computed for the Math items. Reading/Math correlations were determined separately for each of these three total scores. As expected, the unweighted total scores are somewhat more highly correlated than are the corresponding factor scores, which is one reason why factor scores are preferable. For example, across all respondents the Reading/Math correlation is 0.06 for the pair of factor scores in Table 2, but the correlation is 0.19, 0.20 and 0.24 for pairs of scores representing the unweighted sums of the eight items in each scale, the sums of the affective items and the sums of the cognitive items. However, the correlations based upon affective items and based upon cognitive items separately, are only slightly higher than the correlation based upon the sum of all items. This pattern of results is consistent for each of the different samples, for responses by males and females, and for responses by children from different grade levels. This demonstrates that the correlation between Reading and Math self-concepts is consistent across cognitive and affective components of the factors.

For the SDQ II and SDQ III, the wording of items in the Math and Verbal scales is not necessarily parallel, and the content of most of the items reflects a cognitive component. There are only 6 of 22 items on the SDQ II, and 4 of 20 items on the SDQ III, which comprise the Math and Verbal scales which reflect an affective component. Consequently, the Math/Verbal correlation cannot be determined separately for cognitive and affective items. However, with such a small proportion of affective items, it is unlikely that any cognitive/affective distinction, should there be one, has a substantial impact on the observed correlations.

Since previously published results of the Math/Reading correlation have been presented for only one age group, reviewers have questioned the extent to which this phenomena is age dependent. However, results presented in Table 2 show that the lack of correlation is remarkably stable across responses by children as young as grade 4 to subjects in their late-adolescent and early adult years. Only in the responses by second and third grade students was the Reading/Math correlation of practical significance. These results for the youngest children may be related to the the finding of other researchers that children of this age are just beginning to be able to logically compare their own abilities with those of their peers and to incorporate this information into their own self-perceptions (Nicholls, 1979; Stipek, 1981; 1984; also see Marsh, Barnes, Cairns & Tidman, in press). It may also be that a small portion of these very young children are just unable to complete the task, and that unsystematic responding on their part produces the observed correlation when theuir responses are combiend with those of the other children in the second and third grade samples.

Previously reported correlations between Math and Verbal self-concepts have been based upon responses by students in an academic setting. The importance of the internal comparison process where self-perceived skills in math and reading are compared to each other, and the distinctiveness of the two academic self-concepts, may be exaggerated in an academic setting. Consequently, the results of study 11 are particularly important because they are based upon responses from young adults (ages 16 - 35) who were primarily nonstudents and who were participating in a program that emphasized primarily physical fitness, and, perhaps, social relationship skills rather than any sort of academic orientation. Hence, even in a population of nonstudents completing the survey in a nonacademic setting, support for the relative lack of correlation between Verbal and Math self-concepts is

strong.

Summary. The I/E model does not require that the Verbal/Math correlation be exactly zero, but only that it be substantially less than the typically large correlation between Verbal and Math achievement levels. Furthermore, trying to prove the null hypothesis of a zero correlation, particularly when based upon extremely large sample sizes, is always a dubious undertaking. Nevertheless, the results from a wide variety of studies, based upon responses from preadolescents, adolescents and young adults have consistently demonstrated that there is virtually no correlation between Reading and Math self-concepts, and that this lack of Math/Reading correlation is stable across ages (beyond third grade), across sex, across cognitive and affective components of the self-concept scores, and across academic and nonacademic settings.

The Achievement/Self-Concept Relationship for Verbal and Math Scores.

The conclusion that Math and Verbal self-concepts are relatively uncorrelated is both counter-intuitive and paradoxical. It is also contrary to theoretical models, such as the original Shavelson model, which postulate that Verbal and Math self-concepts combine to form a single, higher-order academic self-concept. The revised Shavelson model (Shavelson & Marsh, 1983; Marsh & Shavelson, 1984) which postulates academic/verbal self-concept and academic/mathematical self-concept as separate higher-order factors is consistent with the finding, but it offers no theoretical explanation for why this phenomenon occurs. A theoretical explanation is offered, however, by the Internal/External frame of reference model. While the results described above are clearly consistent with the I/E model, much stronger tests are possible in studies where there are both math and verbal achievement scores as well as Math and Verbal self-concept measures.

Figure 1 illustrates an explicit and counter-intuitive pattern of relationships among the four variables representing academic achievements and academic self-concepts in the form of a path model. The model predicts that while correlations between math and verbal achievements (r34) will be substantial and positive, the residual correlation between Math and Verbal self-concepts will be negligible. Both the model and common sense predict that having good verbal skills will lead to a high Verbal self-concept (p13 is positive), and that good math skills will lead to a high Math self-concept (p24 is positive). However, perhaps counter to intuition, the model further

predicts that the direct effect of math achievement on Verbal self-concept, and of verbal achievement on math self-concept, will be moderate and negative (p14 & p23 are negative). Having better verbal skills will lead to a poorer Math self-concept, and having better math skills will lead to a poorer Verbal self-concept.

Results from different studies employing the SDQ instruments provide a total of 13 analyses to test the path model used to illustrate the I/E predictions. Each of these analyses is based upon a reanalysis of scores from a previous study, though the actual parameter estimates for the path model were presented previously for only study 7. These tests include studies based upon the SDQ, the SDQ II, and the SDQ III, and studies which employ objective test scores, teacher ratings and school performance as indicators of math and reading achievement. The six analyses which use teacher ratings as indicators of achievement all occur at the primary school level where the same teacher is responsible for teaching both math and reading, and hence the achievement ratings were made by the same person. The test scores in study 7 were administered by the researchers, while those in study 11 were part of a state-wide assessment program. The high school performance measure in study 8 was the ability grouping to which each student was assigned on the basis of his/her performance in math classes and English classes during the previous school year. For year 7, the first year of high school in Australia, students were assigned to the same ability grouping in Math and English based upon results of a general ability test, and so no test of the model was possible. Also, Year 10 is the typical "school leaving" age in Australia, and accounts for the smaller sample size even when years 11 and 12 are combined. In years 11 and 12, the "ability grouping" is primarily a self-assigned grouping which reflects student interest and further educational plans, and so the use of the ability grouping as an indicator of achievement for this one group may be dubious. Since the variables used in these analysis are generally not directly comparable across studies, no attempt was made to estimate the path parameters across different analyses.

Insert Table 3 About Here

Parameter estimates derived for the path model in each of the 13 analyses appear in Table 3. As predicted by the I/E model, correlations between indicators of verbal and math achievement (r34) are substantial, ranging from 0.42 to 0.94, while correlations between residual measures of Verbal and Math self-concepts (r12.34) are much

smaller, ranging from -.10 to +.19. It is interesting to note that three of the 13 estimates of r12.34 reach statistical significance, and that each of these is positive, ranging from 0.10 to 0.19, and that each is based upon scores from studies where unweighted totals were used to represent self-concepts rather than factor scores. In the other 13 estimates based upon factor scores the estimates range from -0.10 to +0.12 and none is statistically significant.

The path coefficients representing the relationship between Verbal self-concept and achievement (p13), and between Math self-concept and math achievement (p24), are both positive and statistically significant in all 13 analyses. In dramatic contrast the path coefficients representing the math achievement/verbal self-concept link (p14), and the verbal achievement/math self-concept link (p23) are both negative and statistically significant in all 13 analyses (for 23 of the 24 parameter estimates). The one exception is a nonsignificant path coefficient for 11/12 grade students in study B, and, as mentioned earlier, the use of ability groupings as indicators of achievement may be dubious in this one analysis.

In summary, the parameter estimates in Table 3 provide remarkably strong support for predictions derived from the I/E model. The support for the predictions is consistent across studies where the age of the students differ substantially, where a wide variety of indicators of academic achievement are employed, and where different self-concept instruments are employed.

Self-concepts Inferred By Significant Others.

Results based upon the I/E model suggest that in a broad normative sense, both the internal and external comparison processes are operative, and the weights assigned to the two process are roughly equal. An alternative procedure to test the I/E model is examine parameter estimates in situations where one or the other processes is expected to be markedly stronger. Applying this approach to data which is available in some of the SDQ studies, it is hypothesized that when external observers (e.g., teachers or peers) are asked to infer self-concepts, they rely primarily on externally observable indicators and thus employ primarily the external comparison process.

Self-concept ratings by others are used to determine how accurately self-concept can be inferred by external observers, to validate interpretations to self-concept instruments, and to test diverse theoretical predictions (see Marsh, Barnes & Hocevar, in press; Wells & Marwell, 1976; Wylie, 1974), but the emphasis of the present

discussion is to examine the I/E model when self-concepts are inferred by significant others. There is disagreement about the relevance of inferred self-concept ratings for self-concept. At one extreme Combs, Soper & Courson (1963) argue that ratings by external observers should replace self-ratings as the preferred measure of self-concept. In contrast, others (e.g., Crandall, 1973; Marsh, Smith, Barnes & Butler, 1983; Shavelson et al., 1976; Wylie, 1974) argue for the theoretical separation between self-concept which is based on a person's own self-report and inferred self-concepts which are based upon the report of others. Marsh argued that ratings by others are phenomenologically distinct from self-concept and will only agree with self-reports if the external observer knows the subject well, observes a wide range of behaviors, has viewed a range of different subjects, and is making judgments of the same specific characteristic as the subject.

A series of multitrait-multimethod (MTMM) studies by Marsh (Marsh, Parker & Smith, 1983; Marsh, Smith & Barnes, 1983; Marsh, Smith, Barnes & Butler, 1983) demonstrated significant agreement on multiple self-concepts inferred by primary school teachers and student responses to the SDQ. Student-teacher agreement tended to be highest in academic areas, where the teachers could most easily make relevant observations, and lowest on Relations With Parents. Support for the discriminant validity of the SDQ scales in these studies also demonstrated that student-teacher agreement on each facet was specific to the facet and could not be explained in terms of a generalized agreement that incorporated different areas. Soares and Soares (1977, 1982) also used MTMM analysis to demonstrate significant self-other agreement and evidence for the distinctiveness of different facets of self-concept. The strongest self-other agreement came from a MTMM study where university students completed the SDQ III, and then asked the person in the world who knew them best to complete the SDQ III as if they were the person who had given them the survey. Here, convergent validities were substantial for all self-concept facets (mean $r = 0.58$), and support for the discriminant validity of the facets was also very good. These studies demonstrate that external observers can accurately infer multiple self-concepts in some circumstances.

The finding that self-report self-concepts and inferred self-concepts are modestly, or even substantially, correlated does not imply that they are formed in the same way. While the I/E model was not specifically designed to explain relationships among Math and Reading self-concepts as inferred by others and academic achievement measures,

several observations seem relevant. Previous SDQ research on academic self-concepts inferred by teachers suggests that their ratings are primarily a function of their perceptions of a student's actual academic ability. In this sense, their inferred self-concepts reflect the external comparison process rather than the internal comparison process. Even when they employ the external comparison process, they may be comparing a student's ability to a different frame of reference than that employed by the student. For example, primary teachers in low-SES/ability schools infer self-concepts of their students to be lower than do teachers in high-SES/ability schools, while student self-reports are as high or higher in the low-SES/ability schools (Marsh & Parker, in press; Marsh, in press-a; Marsh, in press-b). It is likely that other external observers also emphasize the external comparison process rather than the internal comparison in forming their inferred self-concepts. If inferred self-concepts are based only upon an external comparison process, the predicted pattern of parameter estimates for the path model will be quite different. In particular, the correlation between the residual scores for Reading and Math self-concepts is likely to be substantial and positive, and the path coefficients representing the math achievement/Verbal self-concept and the verbal achievement/Math self-concept links will not be negative.

In order to examine these predictions, parameter estimates similar to those in Table 3 were determined in those studies where there were independent estimates of inferred self-concepts and achievement scores in math and reading. Only four tests were available (studies where ratings by the same teacher were used both to infer self-concepts and to estimate academic abilities were not included), and all were based upon preadolescent self-concepts. For two of the analyses self-concepts inferred by teachers were correlated with objective test scores, and for the other two analyses self-concepts inferred by peers (another student in the class) were correlated with either teacher ratings of academic ability or achievement test scores. The patterns of parameter estimates in for these analyses (Table 4) differ dramatically from those in Table 3. Correlations between Math and Reading self-concepts as inferred both by teachers and by peers, are much larger than those based upon self-report measures in the same studies (r's of 0.47 to 0.58 compared to r's of -0.09 to 0.07). The path coefficient linking math achievement to Reading self-concept is significantly positive, rather than negative, for three of the four tests, while the path linking reading achievement to Math self-concept is significantly

positive for one test and significantly negative in a secord test.

Insert Table 4 About Here

The parameter estimates for the path model when based upon inferred self-concepts are generally consistent with the assumption that the internal comparison process is weak or nonexistent in the formation of inferred self-concepts. The pattern of results based upon inferred self-concepts is also consistent with theoretical perspectives such as the original Shavelson model where self-concepts in Reading and Math are assumed to be substantially correlated with each other and to combine to form a single, higher-order academic factor. Nevertheless, the pattern of estimates differs dramatically from those observed with self-report measures of self-concept, and suggests that the process used to form one's own self-concept differs from that used to form inferences about self-concepts of someone else. The findings also provide clear support for the contention by Marsh, by Shavelson, and by others that self-concepts inferred by others are phenomenologically distinct from self-report measures of self-concept and challenge the use of inferred self-concepts as the "preferred" indicator of self-concept as suggested by Combs, Soper & Courson (1963).

Discussion and Implications

The purpose of this study was to present the I/E frame of reference model which is designed to explain relationships between Verbal and Math self-concepts, and between these academic self-concepts and corresponding indicators of academic achievement. The I/E model was originally prompted by the observation that Reading and Math self-concepts are relatively uncorrelated with each other, even though verbal and math achievement indicators are substantially correlated with each other and with the corresponding self-concepts. Near-zero correlations between Math and Verbal self-concepts were demonstrated in a wide variety of different studies, and the only correlations of practical significance were observed for second and third grade students. However, it is important to emphasize that the I/E model makes many other testable predictions besides the relative lack of correlation between Math and Verbal self-concepts.

I/E model predictions were further tested in an examination of academic self-concepts and achievement measures. The pattern of relationships between achievement in reading and math, and the corresponding measures of self-concept were dramatic, and paradoxical. Despite high correlations between reading and math achievement indicators, and the significant correlation of each to the matching

measure of academic self-concept, Verbal and Math self-concepts were nearly uncorrelated to each other. Furthermore, the direct effect of reading achievement on Math self-concept, and the direct effect of math achievement Verbal self-concept, were each significantly negative. This pattern of result was consistent, however, with predictions from the I/E model. According to this model a high Verbal self-concept will be more likely when verbal achievement is high (the external process) and when verbal achievement is higher than math achievement. Thus, once the effect of verbal achievement is controlled for, it is the difference between verbal and math achievement that determines Verbal self-concept; the direct effect of math achievement is negative and a higher level of math achievement, given the same level of verbal achievement, will actually lead to a lower level of Verbal self-concept. These findings not only demonstrate the clear separation between Math and Verbal self-concepts, much more clearly than that of the corresponding areas of achievement, but they also demonstrate that academic self-concepts are affected by different processes than are achievement measures in the academic areas which they reflect.

In marked contrast to the self-report data, inferred self-concepts based upon peer and teacher responses did not follow the same pattern of results, and there was no evidence that the internal comparison process was operating. Particularly for teachers, it appears that inferred academic self-concepts reflect little more than their perceptions of objectively defined achievement. In other research with the SDQ (Marsh & Parker, in press; Marsh, in press-a; Marsh, in press-b), academic self-concepts inferred by teachers in high-SES/ability schools were substantially higher than those inferred by teachers in low-SES/ability schools, as were objectively measured achievement levels. However, for student self-report data, academic self-concepts were similar in the different schools -- actually slightly higher in the low-SES/ability schools. Thus an average-ability student would tend to have a higher academic self-concept in a low-SES/ability school (where other students are less able) than a high-SES/ability school (where other students are more able), but would be judged to have an average academic self-concept by teachers in both types of school. Hence, academic self-concepts which are inferred by teachers are more highly correlated with objective achievement measures, but do not accurately reflect the relativistic nature of self-concepts which is embodied in the external comparison process employed by students in forming their own self-concepts. This suggests that even the external

comparison process may not operate the same way in the formation of self-concepts inferred by teachers and those based on student's own self-reports. These findings certainly demonstrate that the formation of ones own self-concepts is affected by different processes than are the self-concepts inferred by significant others.

The I/E model actually posits that self-perceptions of abilities in math and reading are one basis for the formation of these academic self-concepts, rather than objective ability/achievement measures as employed in the analyses presented here. In testing the model it was assumed that actual academic ability/achievement is a reasonably accurate indicator of self-perceived ability/achievement; support for the model justifies this assumption. However, Nicholls (1979) asked children between the ages of 6 and 12 to rank their own reading ability compared with other children in their classroom, and found that the accuracy of their perceptions varied substantially with age; self-ratings and teacher ratings for the youngest children were nearly uncorrelated. The validity of the internal/external frame of reference model does not depend on self-perceptions being accurate, but tests of the validity of the model will be more difficult to formulate if they are not. Consequently, while the model does appear to be valid for a wide range of ages, it has not been tested with very young children under the age of 10 where tests of its validity may be more difficult to formulate.

It was also noted that the predicted near-zero correlation between Reading and Math self-concepts was not observed in responses by second and third grade students. This may also reflect the inability of these very young children to form accurate self-perceptions of their math and reading achievement levels. If, as suggested by Nicholls and by Stipek, these children perceive their academic abilities to be uniformly high in all subject areas, then the internal comparison process will not operate since it is based on perceived differences in math and verbal abilities. This speculation has not been tested, and the observation that very young children perceive their academic abilities to be very high does not necessarily imply that they perceive no differences in their relative ability in different academic areas.

In the present application of the internal/external frame of reference model, academic abilities and self-concepts have been emphasized. However, it is likely that a similar process acts in other areas as well. For example, consider a professional tennis player who is also an excellent golfer, and a week-end sports enthusiast who is

both an average golfer (which is his/her best sport) and a below-average tennis player. The tennis professional in this example is a better golfer than the week-end sports enthusiast, but may have a self-concept as a golfer which is the same or even poorer; this is consistent with the internal comparison process. Such an internal comparison process may also affect self-concepts in broader areas such as academic vs. nonacademic self-concept. Hence, while this application of the internal/external frame of reference model is specific to academic areas, it remains the task of further research to test its application in other areas.

The support of the I/E model and the SDQ research upon which it is based also have practical implications for educators at all levels. An important dilemma faced by teachers is how to give positive feedback and praise that is realistic and honest, and will be accepted by academically poor students. If teachers are able to more accurately infer the academic self-concepts of their students, and better understand how they are formed, then their ability to provide positive reinforcement to students from all ability levels will be enhanced. Even though teachers are able to infer student self-concepts in academic areas with at least modest accuracy, there appear to be several biases in their inferences. Contrary to the inferences typically made by teachers, it is unjustified to assume that an academically weak student will necessarily have poor academic self-concepts in all settings and in all subject areas. First of all, students in settings where other students also are academically weak will have higher academic self-concepts than in settings where other students are academically average or above-average. Previous SDQ research suggests that teachers emphasize absolute measures of academic achievement in inferring academic self-concepts of their students and largely ignore the particular setting which establishes the frame of reference for students' own ratings of their self-concept. Second, inferred self-concept ratings by teachers (and also peers) overemphasize the external comparison of student skills in academic areas and underemphasize differences in skills in particular academic areas. Thus, a student who is weak in both math and verbal skills, but who is stronger in one area than the other will tend to have much larger differences in Verbal and Math self-concepts than is reflected in the self-concepts inferred by teachers.

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TABLE 1
Summary of Conventional/Exploratory Factor Analysis of All Responses (n=3562) to the SDQ

Oblique Factor Pattern Matrix

Variables	PHYS	APPR	PEER	PRNT	READ	MATH	SCHL	commu-nality
Phys1	[67]	03	07	01	00	01	01	453
Phys2	[56]	14	07	06	-01	09	-02	413
Phys3	[84]	05	06	01	02	02	03	643
Phys4	[75]	03	12	03	00	-01	07	589
Appr1	04	[78]	02	08	02	07	01	618
Appr2	02	[80]	06	03	04	00	06	653
Appr3	13	[67]	19	-02	01	00	07	638
Appr4	10	[64]	18	04	01	-01	08	596
Peer1	09	00	[64]	09	00	01	02	431
Peer2	04	14	[63]	06	03	01	10	505
Peer3	06	08	[68]	02	04	07	00	491
Peer4	12	17	[63]	05	00	01	06	555
Prnt1	05	04	04	[57]	01	01	04	319
Prnt2	02	02	01	[56]	06	04	04	302
Prnt3	02	04	11	[72]	04	03	03	501
Prnt4	00	04	07	[78]	01	-01	04	509
Read1	00	02	00	01	[78]	-02	09	606
Read2	00	01	02	02	[85]	02	07	682
Read3	02	04	03	06	[76]	00	14	647
Read4	00	02	03	06	[76]	-01	14	644
Math1	03	04	02	02	-02	[75]	17	692
Math2	03	02	03	04	01	[78]	17	737
Math3	03	01	03	05	00	[79]	17	749
Math4	03	03	04	00	01	[81]	14	757
Schl1	-01	07	04	01	08	10	[65]	510
Schl2	06	11	10	-01	12	17	[46]	476
Schl3	01	-02	00	09	09	16	[65]	593
Schl4	05	01	04	03	09	12	[74]	642

Factor Pattern Correlations

	PHYS	APPR	PEER	PRNT	READ	MATH	SCHL
PHYS	100						
APPR	26	100					
PEER	32	37	100				
PRNT	12	14	22	100			
READ	03	09	03	13	100		
MATH	11	11	13	10	05	100	
SCHL	11	19	20	16	34	47	100

Note: The four measured variables designed to measure each factor are the sum of responses to pairs of items. All parameters are presented without decimal points. Factor loadings in boxes are the loadings of item-pairs designed to measure each factor (target loadings). Responses are from seven different studies (see Table 2) employing the SDQ.

Table 2
Correlations Between Math & Reading Self-concepts in Different Studies Employing the SDQ, SDQ II and SDQ III

Study	N	Grade	Instrument	Factor Score Correlations
1	305	6	SDQ I	-0.02
2a	150	4	SDQ I	0.08
2b	143	4	SDQ I	-0.13
3a	541	5-6	SDQ I	-0.04
3b	528	5-6	SDQ I	0.06
4	180	4-6	SDQ I	0.15
5	498	6	SDQ I	0.06
6a	170	2	SDQ I	0.49**
6b	103	3	SDQ I	0.46**
6c	134	4	SDQ I	0.01
6d	251	5	SDQ I	0.17*
7	559	5	SDQ I	-0.01
Total	Grades 2-4 (n=849)		SDQ I	0.17**
Total	Grades 5-6 (n=1914)		SDQ I	0.01
Total	Males (n=1970)		SDQ I	0.10**
Total	Females (n=1592)		SDQ I	0.06*
Total	(n=3562)		SDQ I	0.06*
8a	236	7	SDQ II	-0.01
8b	223	8	SDQ II	0.08
8c	181	9	SDQ II	-0.05
8d	189	10	SDQ II	-0.04
8e	72	11-12	SDQ II	-0.17
Total	Males (n=479)		SDQ II	0.07
Total	Females (n=422)		SDQ II	-0.02
Total	Grades 7-12 (n=901)		SDQ II	0.00
9	151	university	SDQ III	-0.03
10	296	11	SDQ III	-0.04
11a	357	Young Adult	SDQ III	-0.02
11b	358	Young Adult	SDQ III	-0.01
11c	355	Young Adult	SDQ III	0.03

* $p < .05$, ** $p < .01$

Study References

1 -- Marsh, Parker & Smith, 1983, Study 1
2 -- Marsh, Smith, Barnes & Butler, 1983, study 1, a=time , 1b = time 2.
3 -- Marsh, Smith, Barnes & Butler, 1983, study 2, a=time , 1b = time 2.
4 -- Marsh & Groundwater-Smith, an unpublished study.
5 -- Marsh, Relich & Smith, 1983, Study 2
6 -- Marsh, Cairns, Barnes & Tidman, in press
7 -- Marsh, Smith & Barnes, 1984.
8 -- Marsh, Parker & Barnes, 1984
9 -- Marsh, Barnes & Hocevar, in press.
10-- Marsh & O'Neill, 1984.
11-- Marsh, Richards & Barnes, 1984, an unpublished study (a, b, & c represent instruments administered five weeks prior to, at the start of, and at the end of a month-long self-development program called Outward Bound).

NOTE: Responses for studies 1 - 7 form a normative archive for the SDQ, and the Math and Reading self-concept scores were derived from the factor analysis across responses from all studies shown in Table 1. Consequently, the correlations presented here may differ somewhat from those presented in the original studies cited above. For studies 8-11 the Math and Verbal self-concepts were based on factor scores derived from a separate factor analysis of responses from each study.

Table 3
Path Coefficients For Figure 1 Based Upon
Self-concept Ratings From Different Studies

STUDY	r12.34	p13	p14	p24	p23	r34	Basis of Achievement Scores
1	.00	.53**	-.18*	.52**	-.14*	.42**	Teacher Ratings
2a	.17*	.45**	-.13	.39**	-.25*	.60**	Teacher Ratings
2b	-.04	.64**	-.29**	.51**	-.23*	.54**	Teacher Ratings
2b	-.09	.54**	-.26**	.46**	-.20*	.63**	Test Scores
3a	.10*	.47**	-.33**	.44**	-.21**	.76**	Teacher Ratings
3b	.19**	.28**	-.10*	.43**	-.17*	.61**	Teacher Ratings
7	.01	.46**	-.33**	.53**	-.12*	.76**	Teacher Ratings
7	.07	.54**	-.19**	.30**	-.21**	.61**	Test Scores
8b	.12	.75**	-.58**	.86**	-.71**	.94**	School Performance
8c	-.02	.49**	-.27*	.81**	-.62**	.87**	School Performance
8d	.03	1.03**	-.66**	.73**	-.54**	.88**	School Performance
8e	-.10	.31*	.03	.53**	-.45**	.47**	School Performance
11	-.03	.55**	-.22**	.72**	-.24**	.59**	Test Scores

* $p < .05$, ** $p < .01$

Note: For studies 2 and 3, data were collected at two different times with the same group of subjects, and separate analyses were conducted. For studies 2 and 7, separate analyses were performed with test scores and with teacher rating of achievement as the indicator of achievement. In study 8, the analysis was done separately for each grade level. The lable "r34" refers to a correlation coefficent, r12.34 is a residual correlation, and the "p's" refer to the standardized path coefficients which are obtained from a multiple regression analysis (see Wolfle, 1980, for further detail on the specifics of path analysis).

Table 4
Path Coefficients For Figure 1 Based Upon
Self-concept Inferred By Significant Others

STUDY	r12.34	p13	p14	p24	p23	r34	Inferred By	Achievement Scores
2b	.48**	.25*	.24*	.58**	-.09	.63**	Teacher	Test Scores
7	.58**	.46**	.17**	.36**	.28**	.61**	Teacher	Test Scores
7	.47**	.21**	.17**	.49**	-.16*	.76**	Peers	Teacher Rating
7	.49**	.20**	.08	.19**	.04	.61**	Peers	Test Scores

Note: See Note at the bottom of page 3.

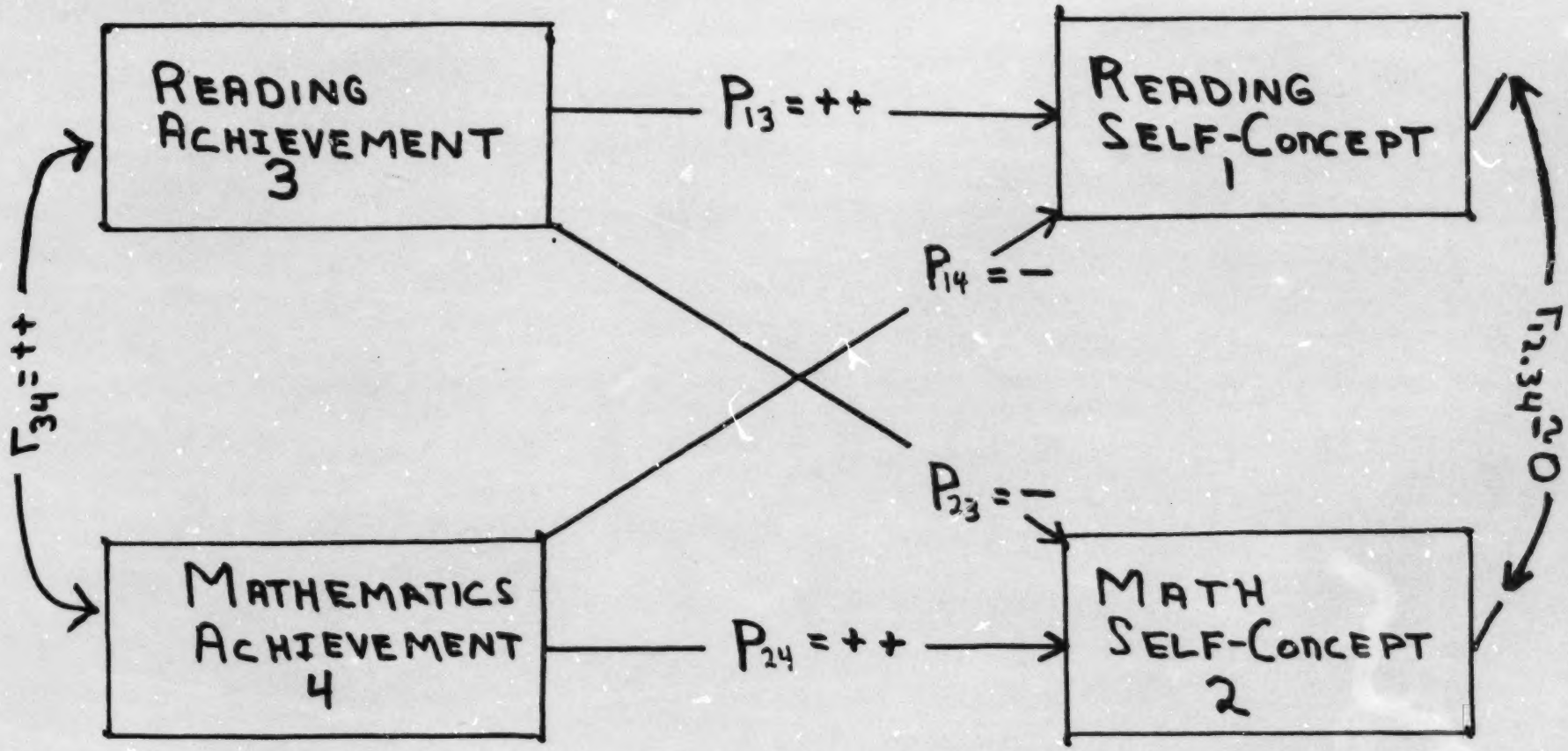

FIGURE 1. Path Model of effects predicted by the Internal/External Frame of Reference Model. Coefficients indicated to be "++", "-", and " 0" are predicted to be high positive, low negative, and approximately zero respectively.

SELF DESCRIPTION QUESTIONNAIRE

Name.....Boy.....Girl.....Grade/Year.....

Age.....School.....Teacher.....

This is a chance to look at yourself. It is not a test. There are no right answers and everyone will have different answers. Be sure that your answers show how you feel about yourself. **PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE.** We will keep your answers private and not show them to anyone.

When you am ready to begin, please read each sentence and decide your answer. (You may read quietly to yourself as I read aloud.) There are five possible answers for each question – – "True", "False", and three answers in between. There are five boxes next to each sentence, one for each of the answers. The answers are written at the top of the boxes. Choose your answer to a sentence and put a tick (✓) in the box under the answer you choose. **DO NOT** say your answer out loud or talk about it with anyone else.

Before you start there are three examples below. Somebody named Bob has already answered two of these sentences to show you how to do it. In the third one you must choose your own answer and put in your own tick (✓).

	FALSE	MOSTLY FALSE	SOMETIMES FALSE, SOMETIMES TRUE	MOSTLY TRUE	TRUE
EXAMPLES					
1. I like to read comic books..... 1	☐	☐	☐	☐	☑ 1
2. In general, I am neat and tidy..... 2	☐	☐	☑	☐	☐ 2
3. I like to watch T.V. 3	☐	☐	☐	☐	☐ 3

(Bob put a tick in the box under the answer "TRUE". This means that he really likes to read comic books. If Bob did not like to read comic books very much, he would have answered "FALSE" or "MOSTLY FALSE".)

(Bob answered "SOMETIMES FALSE, SOMETIMES TRUE" because he is not very neat, but he is not very messy either.)

(For this sentence you have to choose the answer that is best for you. First you must decide if the sentence is "TRUE" or "FALSE" or somewhere in between. If you really like to watch T.V. a lot you would answer "TRUE" by putting a tick in the last box. If you hate watching T.V. you would answer "FALSE" by putting a tick in the first box. If your answer is somewhere in between then you would choose one of the other three boxes.)

If you want to change an answer you have marked you should cross out the tick and put a new tick in another box on the same line. For all the sentences be sure that your tick is on the same line as the sentence you are answering. You should have one answer and only one answer for each sentence. Do not leave out any of the sentences.

If you have any questions put up your hand. Turn over the page and begin. Once you have started, **PLEASE DO NOT TALK.**

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The University of Sydney
, 1981

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
1. I am good looking	1	☐	☐	☐	☐	☐	1
2. I'm good at all SCHOOL SUBJECTS	2	☐	☐	☐	☐	☐	2
3. I can run fast	3	☐	☐	☐	☐	☐	3
4. I get good marks in READING	4	☐	☐	☐	☐	☐	4
5. My parents understand me	5	☐	☐	☐	☐	☐	5
6. I hate MATHEMATICS	6	☐	☐	☐	☐	☐	6
7. I have lots of friends	7	☐	☐	☐	☐	☐	7
8. I like the way I look	8	☐	☐	☐	☐	☐	8
9. I enjoy doing work in all SCHOOL SUBJECTS	9	☐	☐	☐	☐	☐	9
10. I like to run and play hard	10	☐	☐	☐	☐	☐	10
11. I like READING	11	☐	☐	☐	☐	☐	11
12. My parents are usually unhappy or disappointed with what I do	12	☐	☐	☐	☐	☐	12
13. Work in MATHEMATICS is easy for me	13	☐	☐	☐	☐	☐	13
14. I make friends easily	14	☐	☐	☐	☐	☐	14
15. I have a pleasant looking face	15	☐	☐	☐	☐	☐	15
16. I get good marks in all SCHOOL SUBJECTS	16	☐	☐	☐	☐	☐	16
17. I hate sports and games	17	☐	☐	☐	☐	☐	17
18. I'm good at READING	18	☐	☐	☐	☐	☐	18
19. I like my parents	19	☐	☐	☐	☐	☐	19
20. I look forward to MATHEMATICS	20	☐	☐	☐	☐	☐	20
21. Most kids have more friends than I do	21	☐	☐	☐	☐	☐	21
22. I am a nice looking person	22	☐	☐	☐	☐	☐	22
23. I hate all SCHOOL SUBJECTS	23	☐	☐	☐	☐	☐	23
24. I enjoy sports and games	24	☐	☐	☐	☐	☐	24
25. I am interested in READING	25	☐	☐	☐	☐	☐	25
26. My parents like me	26	☐	☐	☐	☐	☐	26

	FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
27. I get good marks in **MATHEMATICS** 27	☐	☐	☐	☐	☐	27
28. I get along with other kids easily 28	☐	☐	☐	☐	☐	28
29. I do lots of important things 29	☐	☐	☐	☐	☐	29
30. I am ugly 30	☐	☐	☐	☐	☐	30
31. I learn things quickly in all **SCHOOL SUBJECTS** . 31	☐	☐	☐	☐	☐	31
32. I have good muscles 32	☐	☐	☐	☐	☐	32
33. I am dumb at **READING** 33	☐	☐	☐	☐	☐	33
34. If I have children of my own I want to bring them up like my parents raised me 34	☐	☐	☐	☐	☐	34
35. I am interested in **MATHEMATICS** 35	☐	☐	☐	☐	☐	35
36. I am easy to like 36	☐	☐	☐	☐	☐	36
37. Overall I am no good 37	☐	☐	☐	☐	☐	37
38. Other kids think I am good looking 38	☐	☐	☐	☐	☐	38
39. I am interested in all **SCHOOL SUBJECTS** 39	☐	☐	☐	☐	☐	39
40. I am good at sports 40	☐	☐	☐	☐	☐	40
41. I enjoy doing work in **READING** 41	☐	☐	☐	☐	☐	41
42. My parents and I spend a lot of time together 42	☐	☐	☐	☐	☐	42
43. I learn things quickly in **MATHEMATICS** 43	☐	☐	☐	☐	☐	43
44. Other kids want me to be their friend 44	☐	☐	☐	☐	☐	44
45. In general I like being the way I am 45	☐	☐	☐	☐	☐	45
46. I have a good looking body 46	☐	☐	☐	☐	☐	46
47. I am dumb in all **SCHOOL SUBJECTS** 47	☐	☐	☐	☐	☐	47
48. I can run a long way without stopping 48	☐	☐	☐	☐	☐	48
49. Work in **READING** is easy for me 49	☐	☐	☐	☐	☐	49
50. My parents are easy to talk to 50	☐	☐	☐	☐	☐	50
51. I like **MATHEMATICS** 51	☐	☐	☐	☐	☐	51
52. I have more friends than most other kids 52	☐	☐	☐	☐	☐	52

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
53. Overall I have a lot to be proud of	53	☐	☐	☐	☐	☐	53
54. I'm better looking than most of my friends	54	☐	☐	☐	☐	☐	54
55. I look forward to all SCHOOL SUBJECTS	55	☐	☐	☐	☐	☐	55
56. I am a good athlete	56	☐	☐	☐	☐	☐	56
57. I look forward to READING	57	☐	☐	☐	☐	☐	57
58. I get along well with my parents	58	☐	☐	☐	☐	☐	58
59. I'm good at MATHEMATICS	59	☐	☐	☐	☐	☐	59
60. I am popular with kids of my own age	60	☐	☐	☐	☐	☐	60
61. I can't do anything right	61	☐	☐	☐	☐	☐	61
62. I have nice features like nose, and eyes, and hair	62	☐	☐	☐	☐	☐	62
63. Work in all SCHOOL SUBJECTS is easy for me	63	☐	☐	☐	☐	☐	63
64. I'm good at throwing a ball	64	☐	☐	☐	☐	☐	64
65. I hate READING	65	☐	☐	☐	☐	☐	65
66. My parents and I have a lot of fun together	66	☐	☐	☐	☐	☐	66
67. I can do things as well as most other people	67	☐	☐	☐	☐	☐	67
68. I enjoy doing work in MATHEMATICS	68	☐	☐	☐	☐	☐	68
69. Most other kids like me	69	☐	☐	☐	☐	☐	69
70. Other people think I am a good person	70	☐	☐	☐	☐	☐	70
71. I like all SCHOOL SUBJECTS	71	☐	☐	☐	☐	☐	71
72. A lot of things about me are good	72	☐	☐	☐	☐	☐	72
73. I learn things quickly in READING	73	☐	☐	☐	☐	☐	73
74. I'm as good as most other people	74	☐	☐	☐	☐	☐	74
75. I am dumb at MATHEMATICS	75	☐	☐	☐	☐	☐	75
76. When I do something, I do it well	76	☐	☐	☐	☐	☐	76

SELF DESCRIPTION QUESTIONNAIRE II

NAME_____ AGE_____ BOY_____ GIRL_____

SCHOOL_____ GRADE/YEAR_____ ENGLISH STREAM/LEVEL_____ MATHEMATICS STREAM/LEVEL_____

COUNTRY YOU WERE BORN IN_____ COUNTRY YOUR FATHER WAS BORN IN_____ COUNTRY YOUR MOTHER WAS BORN IN_____

THIS IS A CHANCE TO LOOK AT YOURSELF. IT IS NOT A TEST. THERE ARE NO RIGHT ANSWERS AND EVERYONE WILL HAVE DIFFERENT ANSWERS. BE SURE THAT YOUR ANSWERS SHOW HOW YOU FEEL ABOUT YOURSELF. PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE. WE WILL KEEP YOUR ANSWERS PRIVATE AND NOT SHOW THEM TO ANYONE. THE PURPOSE OF THIS STUDY IS TO SEE HOW PEOPLE DESCRIBE THEMSELVES.

WHEN YOU ARE READY TO BEGIN, PLEASE READ EACH SENTENCE AND DECIDE YOUR ANSWER. (YOU MAY READ QUIETLY TO YOURSELF IF THEY ARE READ ALOUD TO YOU.) THERE ARE SIX POSSIBLE ANSWERS FOR EACH QUESTION -- "TRUE", "FALSE", AND FOUR ANSWERS IN BETWEEN. THERE ARE SIX BOXES NEXT TO EACH SENTENCE, ONE FOR EACH OF THE ANSWERS. THE ANSWERS ARE WRITTEN AT THE TOP OF THE BOXES. CHOOSE YOUR ANSWER TO A SENTENCE AND PUT A TICK (✓) IN THE BOX UNDER THE ANSWER YOU CHOOSE. DO NOT SAY YOUR ANSWER ALOUD OR TALK ABOUT IT WITH ANYONE ELSE.

BEFORE YOU START THERE ARE THREE EXAMPLES BELOW. I HAVE ALREADY ANSWERED TWO OF THE THREE SENTENCES TO SHOW YOU HOW TO DO IT. IN THE THIRD ONE YOU MUST CHOOSE YOUR OWN ANSWER AND PUT IN YOUR OWN TICK (✓).

	FALSE	MOSTLY FALSE	MORE FALSE THAN TRUE	MORE TRUE THAN FALSE	MOSTLY TRUE	TRUE
1. I LIKE TO READ COMIC BOOKS						✓
2. IN GENERAL, I AM NEAT & TIDY.			✓			
3. I LIKE TO WATCH T.V.						

(I PUT A TICK IN THE BOX UNDER THE ANSWER "TRUE". THIS MEANS THAT I REALLY LIKE TO READ COMIC BOOKS. IF I DID NOT LIKE TO READ COMIC BOOKS VERY MUCH, I WOULD HAVE ANSWERED "FALSE" OR "MOSTLY FALSE".)

(I ANSWERED "MORE FALSE THAN TRUE" BECAUSE I AM DEFINITELY NOT VERY NEAT, BUT I AM NOT REALLY MESSY EITHER.)

(FOR THIS SENTENCE YOU HAVE TO CHOOSE THE ANSWER THAT IS BEST FOR YOU. FIRST YOU MUST DECIDE IF THE SENTENCE IS "TRUE" OR "FALSE" FOR YOU, OR SOMEWHERE IN BETWEEN. IF YOU REALLY LIKE TO WATCH T.V. A LOT YOU WOULD ANSWER "TRUE" BY PUTTING A TICK IN THE LAST BOX. IF YOU HATE WATCHING T.V. YOU WOULD ANSWER "FALSE" BY PUTTING A TICK IN THE FIRST BOX. IF YOU DO NOT LIKE T.V. VERY MUCH, BUT YOU WATCH IT SOMETIMES, YOU MIGHT DECIDE TO PUT A TICK IN THE BOX THAT SAYS "MOSTLY FALSE" OR THE BOX FOR "MORE FALSE THAN TRUE".

IF YOU WANT TO CHANGE AN ANSWER YOU HAVE MARKED YOU SHOULD CROSS OUT THE TICK AND PUT A NEW TICK IN ANOTHER BOX ON THE SAME LINE. FOR ALL THE SENTENCES BE SURE THAT YOUR TICK IS ON THE SAME LINE AS THE SENTENCE YOU ARE ANSWERING. YOU SHOULD HAVE ONE ANSWER AND ONLY ONE ANSWER FOR EACH SENTENCE. DO NOT LEAVE OUT ANY SENTENCES, EVEN IF YOU ARE NOT SURE WHICH BOX TO TICK.

IF YOU HAVE ANY QUESTIONS HOLD UP YOUR HAND. OTHERWISE TURN OVER THE PAGE AND BEGIN.

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	FALSE	MOSTLY FALSE	MORE FALSE THAN TRUE	MORE TRUE THAN FALSE	MOSTLY TRUE	TRUE
1. ENGLISH IS ONE OF MY BEST SUBJECTS.						
2. I HATE THINGS LIKE SPORT, GYM, AND DANCE.						
3. BOYS FIND ME BORING.						
4. PEOPLE CAN REALLY COUNT ON ME TO DO WHAT IS RIGHT.						
5. MY PARENTS UNDERSTAND ME.						
6. WHEN I DO A JOB I DO IT WELL.						
7. I LOOK FORWARD TO MATHEMATICS CLASSES.						
8. I FIND IT DIFFICULT TO MEET GIRLS I LIKE.						
9. I AM HAPPY MOST OF THE TIME.						
10. IF I WORK REALLY HARD I COULD BE ONE OF THE BEST STUDENTS IN MY SCHOOL YEAR.						
11. OTHER PEOPLE THINK I AM GOOD LOOKING.						
12. I HAVE A POOR VOCABULARY.						
13. I ENJOY THINGS LIKE SPORTS, GYM & DANCE						
14. I'M UNCOMFORTABLE BEING AFFECTIONATE WITH MEMBERS OF THE OPPOSITE SEX.						
15. I ALWAYS TELL THE TRUTH.						
16. MY PARENTS TREAT ME FAIRLY.						
17. SOMETIMES I THINK THAT I AM NO GOOD AT ALL.						
18. I HATE MATHEMATICS.						
19. GIRLS OFTEN MAKE FUN OF ME.						
20. I USUALLY LOOK ON THE GOOD SIDE OF THINGS.						
21. I AM STUPID IN MOST SCHOOL SUBJECTS.						
22. I HAVE A NICE LOOKING FACE.						
23. WORK IN ENGLISH CLASSES IS EASY FOR ME.						
24. I'M TERRIBLE AT EVERY SPORT I HAVE EVER TRIED.						
25. I AM POPULAR WITH BOYS.						
26. I SOMETIMES TAKE THINGS THAT BELONG TO OTHER PEOPLE.						
27. MY PARENTS REALLY LOVE ME A LOT.						
28. I CAN'T DO ANYTHING RIGHT.						
29. I DO BADLY IN TESTS OF MATHEMATICS.						

	FALSE	MOSTLY FALSE	MORE FALSE THAN TRUE	MORE TRUE THAN FALSE	MOSTLY TRUE	TRUE
30. I AM POPULAR WITH GIRLS.						
31. I AM OFTEN DEPRESSED AND DOWN IN THE DUMPS.						
32. MOST SCHOOL SUBJECTS ARE JUST TOO HARD FOR ME.						
33. I AM GOOD LOOKING.						
34. I LOOK FORWARD TO ENGLISH CLASSES.						
35. I TRY TO GET OUT OF SPORTS & PHYSICAL EDUCATION CLASSES WHENEVER I CAN.						
36. MOST BOYS WANT ME TO BE THEIR FRIEND.						
37. I OFTEN TELL LIES.						
38. MY PARENTS PUNISH ME MORE SEVERELY THAN I DESERVE.						
39. I HATE MYSELF.						
40. I OFTEN NEED HELP IN MATHEMATICS.						
41. MOST GIRLS TRY TO AVOID ME.						
42. I AM A CALM PERSON.						
43. I LEARN THINGS QUICKLY IN MOST SCHOOL SUBJECTS.						
44. THERE ARE A LOT OF THINGS ABOUT THE WAY I LOOK THAT I WOULD LIKE TO CHANGE.						
45. I GET GOOD MARKS IN ENGLISH.						
46. I AM A SLOW RUNNER.						
47. I FIND IT DIFFICULT TO MEET BOYS I LIKE.						
48. HONESTY IS VERY IMPORTANT TO ME.						
49. IF I HAVE CHILDREN OF MY OWN, I WANT TO BRING THEM UP LIKE MY PARENTS RAISED ME.						
50. OVERALL, I AM NO GOOD.						
51. MATHEMATICS IS ONE OF MY BEST SUBJECTS.						
52. PEOPLE OF THE OPPOSITE SEX THAT I LIKE DON'T LIKE ME.						
53. I OFTEN FEEL CONFUSED AND MIXED UP.						
54. I ENJOY DOING WORK IN MOST SCHOOL SUBJECTS.						
55. I AM UGLY.						
56. I LEARNED TO READ EARLIER THAN MOST OTHERS.						
57. I'M GOOD AT THINGS LIKE SPORT, GYM & DANCE.						
58. I HAVE LOTS OF FRIENDS OF THE OPPOSITE SEX.						

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	FALSE	MOSTLY FALSE	MORE FALSE THAN TRUE	MORE TRUE THAN FALSE	MOSTLY TRUE	TRUE
59. I SOMETIMES TELL LIES TO STAY OUT OF TROUBLE.						
60. I GET ALONG WELL WITH MY PARENTS.						
61. OVERALL, I'M A FAILURE.						
62. I NEVER WANT TO TAKE ANOTHER MATHEMATICS COURSE.						
63. I DO NOT GET ALONG VERY WELL WITH GIRLS.						
64. I WORRY ABOUT A LOT OF THINGS.						
65. I DO WELL IN TESTS IN MOST SCHOOL SUBJECTS.						
66. I HATE THE WAY I LOOK.						
67. I HATE READING.						
68. I AM AWKWARD AT THINGS LIKE SPORT, GYM, & DANCE.						
69. I GET A LOT OF ATTENTION FROM MEMBERS OF THE OPPOSITE SEX.						
70. CHEATING ON A TEST IS OK IF I DO NOT GET CAUGHT.						
71. I DO NOT LIKE MY PARENTS VERY MUCH.						
72. I AM A USEFUL PERSON TO HAVE AROUND.						
73. I GET GOOD MARKS IN MATHEMATICS.						
74. I MAKE FRIENDS EASILY WITH GIRLS.						
75. I AM A NERVOUS PERSON.						
76. I'M GOOD AT MOST SCHOOL SUBJECTS.						
77. MOST OF MY FRIENDS ARE BETTER LOOKING THAN I AM.						
78. I'M HOPELESS IN ENGLISH CLASSES.						
79. I'M BETTER THAN MOST OF MY FRIENDS AT THINGS LIKE SPORTS, GYM & DANCE.						
80. I'M NOT VERY POPULAR WITH MEMBERS OF THE OPPOSITE SEX.						
81. WHEN I MAKE A PROMISE I KEEP IT.						
82. I HAVE A LOT OF ARGUMENTS WITH MY PARENTS.						
83. I DON'T HAVE MUCH TO BE PROUD OF.						
84. I HAVE ALWAYS DONE WELL IN MATHEMATICS.						
85. I HAVE A LOT IN COMMON WITH THE GIRLS I KNOW.						
86. I OFTEN FEEL GUILTY.						
87. I'M NOT VERY INTERESTED IN ANY SCHOOL SUBJECTS.						

	FALSE	MOSTLY FALSE	MORE FALSE THAN TRUE	MORE TRUE THAN FALSE	MOSTLY TRUE	TRUE
88. I'M BETTER LOOKING THAN MOST OF MY FRIENDS.						
89. I OFTEN HAVE TO READ THINGS SEVERAL TIMES BEFORE I REALLY UNDERSTAND THEM.						
90. I CAN RUN A LONG WAY WITHOUT STOPPING.						
91. MOST BOYS TRY TO AVOID ME.						
92. I SOMETIMES CHEAT.						
93. MY PARENTS ARE USUALLY UNHAPPY OR DISAPPOINTED WITH WHAT I DO.						
94. IN GENERAL I LIKE BEING THE WAY I AM.						
95. I HAVE TROUBLE UNDERSTANDING ANYTHING WITH MATHEMATICS IN IT.						
96. I HAVE FEWER FRIENDS OF THE SAME SEX THAN MOST PEOPLE.						
97. I AM USUALLY RELAXED.						
98. PEOPLE COME TO ME FOR HELP IN MOST SCHOOL SUBJECTS.						
99. NOBODY THINKS THAT I'M GOOD LOOKING.						
100. I LEARN THINGS QUICKLY IN ENGLISH CLASSES.						
101. I AM LAZY WHEN IT COMES TO SPORTS & HARD PHYSICAL EXERCISE.						
102. I HAVE A LOT IN COMMON WITH THE BOYS I KNOW.						
103. I AM HONEST.						
104. IT IS DIFFICULT FOR ME TO TALK TO MY PARENTS.						
105. I CAN DO THINGS AS WELL AS MOST OTHER PEOPLE.						
106. I ENJOY STUDYING FOR MATHEMATICS.						
107. GIRLS FIND ME BORING.						
108. I GET UPSET EASILY.						
109. I'M TOO STUPID AT SCHOOL TO GET INTO A UNIVERSITY.						
110. I HAVE A GOOD LOOKING BODY.						
111. I HAVE TROUBLE TRYING TO EXPRESS MYSELF WHEN I TRY TO WRITE SOMETHING.						
112. I MAKE FRIENDS EASILY WITH MEMBERS OF MY OWN SEX.						
113. I DO NOT GET ALONG VERY WELL WITH BOYS.						
114. IF I REALLY TRY I CAN DO ALMOST ANYTHING I WANT TO DO.						
115. I AM NOT VERY GOOD AT READING.						

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	FALSE	MOSTLY FALSE	MORE FALSE THAN TRUE	MORE TRUE THAN FALSE	MOSTLY TRUE	TRUE
116. OVERALL, I HAVE A LOT TO BE PROUD OF.						
117. I AM CHEERFUL AND ON TOP OF THINGS MOST OF THE TIME.						
118. I ENJOY SPENDING TIME WITH MY FRIENDS OF THE SAME SEX.						
119. I FEEL THAT MY LIFE IS NOT VERY USEFUL.						
120. I HAVE TROUBLE WITH MOST SCHOOL SUBJECTS.						
121. I HAVE FEW FRIENDS OF OF THE SAME SEX AS MYSELF.						
122. I DO BADLY ON TESTS THAT NEED A LOT OF READING ABILITY.						
123. I AM A HAPPY PERSON.						
124. BOYS LIKE ME.						
125. MOST THINGS I DO I DO WELL.						
126. I HAVE GOOD FRIENDS WHO ARE MEMBERS OF MY OWN SEX.						
127. OVERALL, MOST THINGS I DO TURN OUT WELL.						
128. NOT MANY PEOPLE OF MY OWN SEX LIKE ME.						
129. MOST GIRLS WANT ME TO BE THEIR FRIEND.						
130. I DON'T GET UPSET VERY EASILY.						
131. NOTHING I DO EVER SEEMS TO WORK OUT RIGHT.						
132. BOYS OFTEN MAKE FUN OF ME.						
133. I GET BAD MARKS IN MOST SCHOOL SUBJECTS.						
134. I SPEND A LOT OF TIME WITH MEMBERS OF MY OWN SEX.						
135. I WORRY MORE THAN I NEED TO.						
136. I MAKE FRIENDS EASILY WITH BOYS.						
137. I AM GOOD AT EXPRESSING MYSELF.						
138. OTHER PEOPLE GET MORE UPSET ABOUT THINGS THAN I DO.						
139. MOST GIRLS LIKE ME.						
140. IT IS DIFFICULT TO MAKE FRIENDS WITH MEMBERS OF MY OWN SEX.						
141. I INTEND TO COMPLETE YEAR 12.						
142. IT'S IMPORTANT TO ME TO BE GOOD AT THINGS LIKE SPORTS, PHYS. ED., GYM, ETC.						
143. IT'S IMPORTANT TO ME TO BE GOOD LOOKING.						
144. IT'S IMPORTANT TO ME TO HAVE A LOT OF FRIENDS OF MY OWN SEX.						
145. IT'S IMPORTANT TO ME TO BE POPULAR WITH MEMBERS OF THE OPPOSITE SEX.						
146. IT'S IMPORTANT TO ME TO DO WELL IN MOST SCHOOL SUBJECTS.						
147. IT'S IMPORTANT TO ME TO DO WELL IN MATHEMATICS CLASSES.						
148. IT'S IMPORTANT TO ME TO DO WELL IN ENGLISH CLASSES.						
149. I INTEND TO GO TO UNIVERSITY AFTER I LEAVE SCHOOL.						
150. IT'S MORE IMPORTANT TO ME TO BE POPULAR WITH SAME-SEX FRIENDS THAN OPPOSITE-SEX FRIENDS.						

NOW WE WANT YOU TO DO A DIFFERENT TASK. Below is a list of personality charactertistics. Please use these characteristics to describe yourself. Indicate on a scale from 1 to 7 how true of you these various characteristics are. Please do not leave any blanks. As an example consider the characteristic HAPPY. Your answer would be:

1 if it is NEVER OR ALMOST NEVER TRUE that you are happy.
2 if it is USUALLY NOT TRUE that you are happy.
3 if it is SOMETIMES BUT INFREQUENTLY TRUE that you are happy.
4 if it is OCASSIONALLY TRUE that you are happy
5 if it is OFTEN TRUE that you are happy.
6 if it is USUALLY TRUE that you are happy.
7 if it is ALWAYS OR ALMOST ALWAYS TRUE that you are happy.

Thus, if you feel it is SOMETIMES BUT INFREQUENTLY TRUE that you are happy, you should write a "3" next to it: 3 HAPPY

1 NEVER OR ALMOST NEVER TRUE	2 USUALLY NOT TRUE	3 SOMETIMES BUT INFREQUENTLY TRUE	4 OCCASIONALLY TRUE	5 OFTEN	6 USUALLY TRUE	7 ALWAYS OR ALMOST ALWAYS TRUE
___FIRM	___NERVOUS	___WEAK	___LOYAL	___PLEASURE-SEEKING		___DETERMINED
___DEPENDENT	___AGGRESSIVE	___BASHFUL	___STRONG	___LOVES CHILDREN		___HASTY
___PATIENT	___CONFIDENT	___MISCHIEVOUS	___CAREFREE	___NEEDS APPROVAL		___BRAVE
___TENSE	___COMPETITIVE	___RESPONSIBLE	___ABSENT-MINDED	___SENSITIVE TO THE NEEDS OF OTHERS		___LOUD
___BOSSY	___CASUAL	___EMOTIONAL	___RUDE	___SELF-SUFFICIENT		___LIVELY
___NOISY	___TIMID	___RESOURCEFUL	___SEES SELF RUNNING SHOW	___SELF-CRITICAL		___CRIES EASILY
___RASH	___LOGICAL	___SHY	___OUTSPOKEN	___CLEAR-THINKING		___INEFFICIENT
___SHOW-OFF	___GRATEFUL	___CHILDLIKE	___WORRYING	___SKILLED IN BUSINESS		___HELPFUL
___INTEREST'NG	___SARCASTIC	___ANXIOUS	___GENTLE	___FEELS SUPERIOR		___FLASHY
___APPRECIATIVE	___FORCEFUL	___BOASTFUL	___SILLY	___DEVOTES SELF TO OTHERS		___WIDE INTERESTS

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NAME _____

SELF DESCRIPTION QUESTIONNAIRE III

(to be completed by yourself)

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This is a chance for you to consider how you think and feel about yourself. This is not a test - there are no right or wrong answers, and everyone will have different responses. The purpose of this study is to determine how people describe themselves and what characteristics are most important to how people feel about themselves.

We are also interested in how accurately a good friend, a spouse, or a family member can assess how you think and feel. Consequently, you have been given two separate surveys. This one is to be completed by you and returned before you leave. The second survey, along with the stamped envelope, is to be given to the person in your life who you think knows you best. Ask this person to complete the survey, and to mail it back to us. Please do not ask the person to share his/her responses with you or show you the completed survey as it means his/her responses are not kept confidential.

It is important that we be able to match your survey with the second survey that is completed about you by someone else - unmatched surveys are of no value to us. Consequently, we would like you to put your name followed by a five digit number that you make up (to protect against duplicate names) at the top of both surveys. If you feel strongly that you do not want your name on the survey, put your mother's maiden name followed by a five digit number that you make up. Your responses will be kept strictly confidential and will not be shown to anyone not directly connected with the project. Consequently, we ask you to be candid in making your responses.

BE SURE THAT YOU GIVE THE SECOND SURVEY TO SOMEONE WHO KNOWS YOU WELL AND THAT THEY UNDERSTAND THE IMPORTANCE OF COMPLETING THE SURVEY AND MAILING IT BACK TO US. THANK YOU FOR YOUR CO-OPERATION.

Before beginning the survey, please complete the following items:

_____Age _____Sex _____High School Certificate Aggregate (if you took it)

_____Marital Status: 1-single, 2-married, 3-divorced/separated

_____Number of years you have completed at tertiary institution

_____Number of years until you will complete the degree/program you are working on (count the remainder of this year as one year)

_____What academic department/school will your degree be in (e.g., Psychology, Education, Medicine, etc.)?

_____Social Economic Status of your family at the time you were in high school based upon parents' education, income, and occupational status: 1-lower class, 2-lower middle class, 3-middle class, 4-upper middle class, 5-upper class.

	FATHER	MOTHER	YOU
Country of Birth	_____	_____	_____
Year Immigrated to Australia (if appropriate)	19____	19____	19____
Occupation (at the time you were in high school)	_____	_____	
Highest level of education completed 1-none, 2-primary, 3-compulsory secondary (up to age 14/15), 4-complete secondary (grade 11 or 12), 5-tertiary, 6-Masters or Ph.D.	_____	_____	

On the following pages are a series of statements that are more or less true (or more or less false) descriptions of you. Please use the following eight-point response scale to indicate how true (or false) each item is as a description of you. Respond to the items as you now feel even if you felt differently at some other time in your life. In a few instances, an item may no longer be appropriate to you, though it was at an earlier period of your life (e.g., an item about your present relationship with your parents if they are no longer alive). In such cases, respond to the item as you would have when it was appropriate. Try to avoid leaving any items blank.

After completing all the items, you will be asked to select those that best describe important aspects - either positive or negative - of how you feel about yourself. Consider this as you are completing the survey.

1	2	3	4	5	6	7	8
Definitely False	False	Mostly False	More False than True	More True Than False	Mostly True	True	Definitely True

THANK YOU VERY MUCH FOR YOUR CO-OPERATION.

H.W.Marsh, 1982

1-Def. False/2-False/3-Mostly False/4-More False Than True/5-More True Than False/6-Mostly True/7-True/8-Def. True

_____1. I find many mathematical problems interesting and challenging.

_____2. My parents are not very spiritual/religious people.

_____3. Overall, I have a lot of respect for myself.

_____4. I often tell small lies to avoid embarrassing situations.

_____5. I get a lot of attention from members of the opposite sex.

_____6. I have trouble expressing myself when trying to write something.

_____7. I am usually pretty calm and relaxed.

_____8. I hardly ever saw things the same way as my parents when I was growing up.

_____9. I enjoy doing work for most academic subjects.

_____10. I am never able to think up answers to problems that haven't already been figured out.

_____11. I have a physically attractive body.

_____12. I have few friends of the same sex that I can really count on.

_____13. I am a good athlete.

_____14. I have hesitated to take courses that involve mathematics.

_____15. I am a spiritual/religious person.

_____16. Overall, I lack self-confidence.

_____17. People can always rely on me.

_____18. I find it difficult to meet members of the opposite sex whom I like.

_____19. I can write effectively.

_____20. I worry a lot.

_____21. I would like to bring up children of my own (if I have any) like my parents raised me.

_____22. I hate studying for many academic subjects.

_____23. I am good at combining ideas in ways that others have not tried.

_____24. I am ugly.

_____25. I am comfortable talking to members of the same sex.

_____26. I am awkward and poorly coordinated at most sports and physical activities.

_____27. I have generally done better in mathematics courses than other courses.

_____28. Spiritual/religious beliefs have little to do with my life philosophy.

_____29. Overall, I am pretty accepting of myself.

_____30. Being honest is not particularly important to me.

_____31. I have lots of friends of the opposite sex.

_____32. I have a poor vocabulary.

_____33. I am happy most of the time.

_____34. I still have many unresolved conflicts with my parents.

_____35. I like most academic subjects.

_____36. I wish I had more imagination and originality.

_____37. I have a good body build.

_____38. I don't get along very well with other members of the same sex.

_____39. I have good endurance and stamina in sports and physical activities.

_____40. Mathematics makes me feel inadequate.

_____41. Spiritual/religious beliefs make my life better and make me a happier person.

_____42. Overall, I don't have much respect for myself.

_____43. I nearly always tell the truth.

_____44. Most of my friends are more comfortable with members of the opposite sex than I am.

_____45. I am an avid reader.

_____46. I am anxious much of the time.

_____47. My parents have usually been unhappy or disappointed with what I do and have done.

_____48. I have trouble with most academic subjects.

_____49. I enjoy working out new ways of solving problems.

_____50. There are lots of things about the way I look that I would like to change.

_____51. I make friends easily with members of the same sex.

_____52. I hate sports and physical activities.

_____53. I am quite good at mathematics.

_____54. My spiritual/religious beliefs provide the guidelines by which I conduct my life.

_____55. Overall, I have a lot of self-confidence.

_____56. I sometimes take things that do not belong to me.

_____57. I am comfortable talking to members of the opposite sex.

_____58. I do not do well on tests that require a lot of verbal reasoning ability.

_____59. I hardly ever feel depressed.

_____60. My values are similar to those of my parents.

_____61. I'm good at most academic subjects.

_____62. I'm not much good at problem solving.

_____63. My body weight is about right (neither too fat nor too skinny).

_____64. Other members of the same sex find me boring.

_____65. I have a high energy level in sports and physical activites.

_____66. I have trouble understanding anything that is based upon mathematics.

_____67. Continuous spiritual/religious growth is important to me.

_____68. Overall, I have a very good self-concept.

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1-Def. False/2-False/3-Mostly False/4-More False Than True/5-More True Than False/6-Mostly True/7-True/8-Def. True

_____69. I never cheat.

_____70. I'm quite shy with members of the opposite sex.

_____71. Relative to most people, my verbal skills are quite good.

_____72. I tend to be high-strung, tense, and restless.

_____73. My parents have never had much respect for me.

_____74. I'm not particularly interested in most academic subjects.

_____75. I have a lot of intellectual curiosity.

_____76. I dislike the way I look.

_____77. I share lots of activities with members of the same sex.

_____78. I'm not very good at any activities that require physical ability and coordination.

_____79. I have always done well in mathematics classes.

_____80. I rarely if ever spend time in spiritual meditation or religious prayer.

_____81. Overall, nothing that I do is very important.

_____82. Being dishonest is often the lesser of two evils.

_____83. I make friends easily with members of the opposite sex.

_____84. I often have to read things several times before I understand them.

_____85. I do not spend a lot of time worrying about things.

_____86. My parents treated me fairly when I was young.

_____87. I learn quickly in most academic subjects.

_____88. I am not very original in my ideas, thoughts, and actions.

_____89. I have nice facial features.

_____90. Not many people of the same sex like me.

_____91. I like to exercise vigorously at sports. and/or physical activities.

_____92. I never do well on tests that require mathematical reasoning.

_____93. I am a better person as a consequence of my spiritual/religious beliefs.

_____94. Overall, I have pretty positive feelings about myself.

_____95. I am a very honest person.

_____96. I have had lots of feelings of inadequacy about relating to members of the opposite sex.

_____97. I am good at expressing myself.

_____98. I am often depressed.

_____99. It has often been difficult for me to talk to my parents.

_____100. I hate most academic subjects

_____101. I am an imaginative person.

_____102. I wish that I were physically more attractive.

_____103. I am popular with other members of the same sex.

_____104. I am poor at most sports and physical activities.

_____105. At school, my friends always came to me for help in mathematics.

_____106. I am basically an atheist, and believe that there is no being higher than man.

_____107. Overall, I have a very poor self-concept.

_____108. I would feel OK about cheating on a test as long as I did not get caught.

_____109. I am comfortable being affectionate with members of the opposite sex.

_____110. In school I had more trouble learning to read than most other students.

_____111. I am inclined towards being an optimist.

_____112. My parents understand me.

_____113. I get good marks in most academic subjects.

_____114. I would have no interest in being an inventor.

_____115. Most of my friends are better looking than I am.

_____116. Most people have more friends of the same sex than I do.

_____117. I enjoy sports and physical activities.

_____118. I have never been very excited about mathematics.

_____119. I believe that there will be some form of continuation of my spirit or soul after my death.

_____120. Overall, I have pretty negative feelings about myself.

_____121. I value integrity above all other virtues.

_____122. I never seem to have much in common with members of the opposite sex.

_____123. I have good reading comprehension.

_____124. I tend to be a very nervous person.

_____125. I like my parents.

_____126. I could never achieve academic honours, even if I worked harder.

_____127. I can often see better ways of doing routine tasks.

_____128. I am good looking.

_____129. I have lots of friends of the same sex.

_____130. I am a sedentary type who avoids strenuous activity.

_____131. Overall, I do lots of things that are important.

_____132. I am not a very reliable person.

_____133. Spiritual/religious beliefs have little to do with the type of person I want to be.

_____134. I have never stolen anything of consequence.

_____135. Overall, I am not very accepting of myself.

_____136. Few if any of my friends are very spiritual or religious.

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MOST IMPORTANT ITEMS: please select up to 12 items from the last two pages that best describe important aspects - either positive or negative - of how you feel about yourself. Indicate these by putting the item numbers in the blanks below. (The order you put them in is not important)

#_____ #_____

#_____ #_____

#_____ #_____

#_____ #_____

#_____ #_____

Different characteristics, both positive and negative, vary in their importance in determining how you feel about yourself. For example, the statement "I am musically talented" may be very inaccurate as a description of you, but it may also be very unimportant about how you feel about yourself. Below are statements about different characteristics. For each statement please judge: 1) how ACCURATE the statement is as a description of you; and 2) how IMPORTANT the characteristic is in determining how you feel (either positive or negative) about yourself. Please use the following response scale:

1	2	3	4	5	6	7	8	9
Very Inaccurate		Inaccurate		Moderate or Average		Accurate		Very Accurate
Very Unimportant		Unimportant				Important		Very Important

ACCURACY: How accurate is this statement about you?

IMPORTANCE: How important is the characteristic to you?

_____ .... I am good at sports and physical activities..... _____

_____ .... I am physically attractive/good looking..... _____

_____ .... I have good interactions/relationships with members of the opposite sex ..... _____

_____ .... I have good interactions/relationships with members of the same sex ..... _____

_____ .... I have good interactions/relationships with my parents ... _____

_____ .... I am an emotionally stable person..... _____

_____ .... I am a spiritual/religious person..... _____

_____ .... I am an honest/reliable/trustworthy person..... _____

_____ .... I have good verbal skills/reasoning ability..... _____

_____ .... I have good mathematical skills/reasoning ability..... _____

_____ .... I am a good student in most academic subjects ..... _____

_____ .... I am good at problem solving/creative thinking..... _____

Please use the spaces below to indicate general characteristics that are important in determining how you feel about yourself THAT HAVE NOT BEEN INCLUDED IN THIS SURVEY. (leave them blank if there are none)

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

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